

IN THE CLAIMS:

A complete listing of the claims and their status as of this Amendment is as follows:

Claim 1 (currently amended): A method of forming high-molecular polymers starting from gel-forming water-insoluble polymers, comprising the steps of:

- a): dissolving an amount of at least one initiator-modifier compound of the formula of one of EHaO , EHaO_2 , EHaO_3 or EHaO_4 , wherein E consists of one of hydrogen, an alkali metal or an alkali earth metal and Ha consists of halogen, in an aqueous solution at a starting temperature to form a reaction mixture;
- b): adding a gel-forming water insoluble polymer to the ~~solution~~ reaction mixture and mixing it therewith to form macro-aggregates from the water insoluble polymer polymers; and
- c): modifying the macro-aggregates by at least one of heating and or irradiation to form a water-soluble high-molecular polymer polymers.

Claim 2 (currently amended): The method of claim 1, wherein modification of the macro-aggregates by heating further comprises increasing the temperature of the solution reaction mixture steadily or in intervals from the starting temperature to an elevated aging temperature for a pre-determined time period.

Claim 3 (currently amended): The method of claim 1, further comprising the step of adding a reducing agent to the ~~solution~~ reaction mixture for the removal of excess initiator-modifier compound.

Claim 4 (canceled):

Claim 5 (currently amended): The method of claim 1, further comprising selecting the initiator-modifier compound from the group consisting of at least one of CaOCl_2 , ozone, peroxide compounds E_2O_2 and ammonium peroxysulphate.

Claim 6 (currently amended): The method of claim 1, further comprising generating the initiator-modifier compound 'in situ' by adding at least one precursor compound ~~compounds or educts~~ for forming 'in situ' substances of the formula of one of the group consisting of ~~one of~~ EHaO , EHaO_2 , EHaO_3 or EHaO_4 wherein:

E consists of at least one of hydrogen, an alkali metal or an alkali earth metal;

and

Ha consists of a halogen.

Claim 7 (previously presented): The method of claim 1, further comprising determining the concentration of the initiator-modifier compound according to a concentration of active oxygen.

Claim 8 (currently amended): The method of claim 7, further comprising preparing the concentration by-weight of the initiator-modifier compound to be between 0.05 and 20.0% of the a polymer mass to be modified.

Claim 9 (currently amended): The method of claim 7, further comprising preparing the concentration of the initiator-modifier compound to be between one of 0.1 and 10%, preferably ~~between~~ 0.3 and 5%, and most-preferably ~~between~~ 0.5 and 1.0% of the polymer mass to be modified.

Claim 10 (currently amended): The method of claim 1, further comprising adding the water insoluble polymer in solid form.

Claim 11 (currently amended): The method of claim 10, further comprising adding the water insoluble polymer to the reaction mixture solution in a granulated form.

Claim 12 (currently amended): The method of claim 11, further comprising selecting the water insoluble polymer from polymers composed of particles with a mean diameter of maximum of one of 400 μm , preferably maximum-200 μm , and most-preferably maximum 150 μm .

Claim 13 (currently amended): The method of claim 1, ~~further comprising forming a reaction mixture of water and~~ wherein said dissolving an amount of at least one initiator-modifier compound comprises dissolving an alkaline compound in the aqueous solution

for forming an alkaline solution that wherein the alkaline compound is less than 10% per weight of the reaction mixture.

Claim 14 (currently amended): The method of claim 1, further comprising allowing dissolution-of dissolving the initiator-modifier compound in a temperature range between 0 and 50 °C.

Claim 15 (currently amended): The method of claim 1, further comprising adding the water insoluble polymer within 20 minutes.

Claim 16 (currently amended): The method of claim 1, wherein the water insoluble polymer ~~polymers~~ to be modified are is selected from a hydrophilic superabsorbent polymer ~~polymers~~ that ~~are copolymers~~ is a copolymer of acrylic acid.

Claim 17 (currently amended): The method of claim 1, further comprising selecting the amount of water insoluble polymer in a the reaction mixture to be between 0.1% and 50.0% of a weight of the reaction mixture.

Claim 18 (currently amended): The method of claim 1, further comprising maintaining the pH of the reaction ~~solution~~ mixture between 5 and 14.

Claim 19 (currently amended): The method of claim 1, further comprising aging the resulting reaction mixture at ~~an~~ aging a temperature of 20 to 50 °C for at least 1 hour.

Claim 20 (previously presented): The method of claim 1, further comprising irradiating the reaction mixture by electromagnetic radiation consisting of at least one of daylight, UV-light, penetrating (γ) and X-ray radiation.

Claim 21 (previously presented): The method of claim 1, further comprising agitating or stirring the reaction mixture vigorously during and after the addition of the gel-forming water insoluble polymer.

Claim 22 (currently amended): A high molecular mass acrylic polymer ~~formed by the steps~~ comprising:

~~dissolving~~ an amount of at least one initiator-modifier compound of the formula of one of EHaO , EHaO_2 , EHaO_3 or EHaO_4 , wherein E consists of one of hydrogen, an alkali metal or an alkali earth metal and Ha consists of halogen, dissolved in an aqueous solution at a starting temperature to form a reaction mixture; and

adding a gel-forming water insoluble polymer added to the solution reaction mixture and mixing it mixed therewith to form macro-aggregates from the water insoluble polymer polymers; and

whereby modifying the macro-aggregates are modified by at least one of heating and or irradiation to form a water-soluble high-molecular polymer polymers.

Claim 23 (currently amended): The acrylic polymer of claim 22, wherein the average molecular weight of the water-soluble polymer is between 0.2×10^8 and 15×10^8 a.u.

Claim 24 (canceled)

Claim 25 (currently amended): The acrylic polymer of claim 22, ~~further comprising~~ adding wherein the reaction mixture further comprises a reducing agent for removing excess initiator-modifier compound.

Claim 26 (currently amended): The acrylic polymer of claim 22, wherein the initiator-modifier compound is selected from the group consisting of at least one of CaOCl_2 , ozone, peroxide compounds E_2O_2 and ammonium peroxydisulphate.

Claim 27 (currently amended): The acrylic polymer of claim 22, wherein ~~the a~~ concentration of ~~the a~~ initiator-modifier compound is determined according to a concentration of active oxygen.

Claim 28 (currently amended): The acrylic polymer of claim 22, wherein ~~the a~~ concentration by weight of the initiator-modifier compound is approximately between 0.05 and 20.0% of ~~the a~~ polymer mass to be modified.

Claim 29 (currently amended): The acrylic polymer of claim 22, wherein the water insoluble polymer is comprised of particles with a mean diameter maximum of approximately 400 μm .

Claim 30 (currently amended): The acrylic polymer of claim 22, wherein the steps further comprising comprise forming an alkaline solution from an alkaline compound, wherein said alkaline compound is less than 10% per weight of the ~~alkaline~~ reaction solution.

Claim 31 (currently amended): The acrylic polymer of claim 22, wherein the water insoluble polymer ~~polymers~~ to be modified are is a hydrophilic superabsorbent superabsorbents.

Claim 32 (currently amended): The acrylic polymer of claim 22, ~~further comprising forming a reaction mixture~~, wherein ~~the~~ a concentration of the water insoluble polymer in the reaction mixture is between approximately 0.1% and 50.0% per weight of the reaction mixture.